

PATENT
Docket No: ST00027USU (129-US-U1)
Serial No.: 10/020,349

REMARKS

STATUS SUMMARY

Claims 1-6 are pending in the present application and are rejected under 35 U.S.C. § 103(a). In response, Applicants are traversing the rejections under 35 U.S.C. § 103(a) without amending any of these claims. Applicants have considered the above-identified Office action and cited references, and reply as set forth below to place the application in condition for allowance.

CLAIM REJECTIONS - 35 U.S.C. § 103

Claims 1-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over JP Publication No. 07-106920 of Morinaga et al. ("*Morinaga*") in view of U.S. Patent No. 6,928,275 to Patrick et al. ("*Patrick*"). Applicants respectfully traverse this rejection in view of the discussion below.

Applicants respectfully maintain that *Morinaga* and *Patrick* combined fail to teach each and every feature or element recited in the rejected claims. Regarding independent claim 1, the Examiner states as follows:

Regarding claim 1, Morinaga discloses an apparatus for estimating frequency errors in locally generated clock signal for receivers, comprising: a local oscillator (5, Drawing 6) for generating a clock signal and a sampling clock, a sampling block (reads on 7/8, Drawing 6) coupled to the local oscillator, for receiving a discrete, non-continuous reference signal and the sampling clock and for generating reference sample signals, and a local oscillator frequency error estimator (11, Drawing 1), for generating an error estimate between the reference signal and local oscillator sampling clock (paragraph: 0042).

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Applicants respectfully submit that *Morinaga* does not teach or disclose a sampling block receiving a discrete, non-continuous reference signal of claim 1 for the following reasons. First, in Drawing 6 of *Morinaga*, there is no sampling block 102 (FIG. 1) coupled to a local oscillator that receives a "discrete, non-continuous reference signal" and generates reference sample signals. In *Morinaga*, the sampling blocks that receive the discrete, non-continuous reference signal, according to the Examiner, are the analog-to-digital conversion machines 7 and 8 of FIG. 6 (see paragraph [0042] of *Morinaga*). These conversion machines 7 and 8 receive a mixed output from mixers 3 and 4, where the input to mixers 3 and 4, are an input signal received by an antenna 1 and then band-limited by band limit filter 2, and a local oscillation signal from a local oscillator 5 after it has been shifted by a phase converter 6 (see paragraph [0042] of *Morinaga*, lines 2-6).

From conversion machines 7 and 8, a digital signal is given to the wavelet conversion circuit 10, where a wavelet transform is carried out using a complex Haar function (paragraph [0042]). A principle of the invention of *Morinaga* is the wavelet transform, which is explained in greater detail in paragraphs [0009]-[0022] of *Morinaga*.

From the wavelet conversion circuit 10, the wavelet-transformed signals are output to the error detection circuit 11 where a frequency error is detected. This may be accomplished utilizing certain algorithms as described in, for example, paragraph [0034] of *Morinaga*. In contrast, in the claimed invention, reference sample signals are generated by the sampling block from a reference signal and a sample clock from the local oscillator.

Thus, in general, *Morinaga* does not teach or disclose a local oscillator frequency error estimator that generates an error estimate between a reference signal and the local oscillator

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sampling clock. Nor are these features/elements found in *Patrick* because *Patrick*, in general, is related to "reducing the frequency error of a Local Oscillator (LO) by characterizing the LO over numerous operating conditions and compensating the LO based upon the operating conditions." Col. 3: line 66, to col. 4: line 3. For example, in FIG. 4 of *Patrick* cited by the Examiner, *Patrick* discloses receiving an external signal from a base station that is used to characterize the LO 450. Col. 7: line 60, to col. 8: line 6. This external signal is used to determine the frequency error in LO 450 and sensors monitor factors that may contribute to LO 450 frequency error, all of which may be stored in memory in an oscillation characterization circuit 430. Col. 8: lines 15-30. However, *Patrick* also does not teach or disclose a local oscillator frequency error estimator that generates an error estimate between a reference signal and the local oscillator sampling clock.

As for claim 5, this claim is also rejected under 35 U.S.C. § 103(a) as being unpatentable over *Morinaga* in view of *Patrick*, and the foregoing also applies to method claim 5. This is because claim 5 includes the steps of "receiving a discrete, non-continuous reference signal from a source providing the reference signal," and "sampling the reference signal and a clock signal from the local oscillator and providing a second reference signal." Therefore, for the reasons stated above, Applicants respectfully submit that the combination of *Morinaga* and *Patrick* fail to teach each and every feature or element recited in method claim 5.

Accordingly, Applicants believe that independent claims 2-4 and 6, which depend directly or indirectly from allowable claims 1 and 5, respectively, are also in condition for allowance and Applicants respectfully request that the Examiner withdraw the rejections of claims 1-6 under 35 U.S.C. § 103(a).

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CONCLUSION


In light of the above remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effect is earnestly solicited.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Office action.

Respectfully submitted,
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